UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,500	10/02/2003	Cheng-Chung Shen	ACIP0018USA	2499

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EXAMINER
SAEED, USMAAN

ART UNIT	PAPER NUMBER
2166	

DATE MAILED: 03/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

<table>
<tr><td rowspan="2">Office Action Summary</td><td>Application No.</td><td>Applicant(s)</td></tr>
<tr><td>10/605,500</td><td>SHEN, CHENG-CHUNG</td></tr>
<tr><td></td><td>Examiner</td><td>Art Unit</td></tr>
<tr><td></td><td>Usmaan Saeed</td><td>2166</td></tr>
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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>02 October 2003</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-20</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-20</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>02 October 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>10/02//2003</u>.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-20 are pending in this office action.

Information Disclosure Statement

2.   Applicants' Information Disclosure Statement, filed on 10/2/2003 has been received, entered and considered. See attached form PTO-1449.

Claim Objections

3.   Claim 3 is objected to because of the following informalities: There is no space between the word position and the word over, and in the claim it is recited as "positionover". Appropriate correction is required.

Specification

4.   The disclosure is objected to because of the following informalities: Specification recites "Step 518: Are the word pairs finished? If yes then proceed to step 520 otherwise proceed to step 524." These lines are inconsistent with the drawings. Drawing teaches that if yes then proceed to step 522 otherwise proceed to step 520.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 3 and 12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. These claims contain "master position", which is not described in the specification.

Claims 4-5 are also rejected under 35 U.S.C 112, since they are dependent on claim 3.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 6-10, and 15-20 are rejected under 35 U.S.C. 102(e) as being anticipated by **Horvitz et al. (Horvitz** hereinafter) (U.S. Patent No. 6,505,167).

With respect to claim 1, **Horvitz** teaches **a method for computerized extracting of scheduling information from a natural language text for automatic entry into a calendar application, the method comprising the following steps:**

"(a) parsing the natural language text to build a dependency tree" as the message text is parsed against typical patterns and assumptions of commonsense language, as engrained in the message understanding model (**Horvitz** Col 9, Lines 46-48). A model, such as a text classification system, is built. Text classification systems are based on technologies for classifying objects based on attributes--these include Support Vector Machines, Bayesian networks, decision trees, and combinations thereof as known within the art, is constructed, based on the feature selection accomplished in 400 (**Horvitz** Col 9, Lines 11-17).

"(b) determining if the natural language text contains scheduling information" as in parsing the message to determine a most precise correct scheduling action to perform, as those of ordinary skill within the art can understand (**Horvitz** Col 9, Lines 27-29). **"by calculating a probability sum for the dependency tree"** as the method can perform a scheduling action based on the message, upon determining the scheduling probability of the message (**Horvitz** Col 2, Lines 9-11).

"**(c) if the probability sum exceeds a predetermined value, extracting scheduling information from the dependency tree and exporting the scheduling information to the calendar application**" as the method can perform a scheduling action based on the message, upon determining the scheduling probability of the message. Based on the scheduling probability--defined in one embodiment as the probability a user desires to view a calendar or to schedule an appointment given the information in an email message or other source of text-based information.--the method determines if it should do nothing (i.e., corresponding to a low probability), do something automatically (i.e., corresponding to a high probability), or suggest an action, but do not do it automatically (i.e., corresponding to a medium probability). Thus, embodiments of the invention effectively link scheduling with messaging automatically, when a message has scheduling information contained therein (**Horvitz** Col 2, Lines 9-21).

Claim 10 is essentially the same as claim 1 except it sets forth the claimed invention as an apparatus and is rejected for the same reasons as applied hereinabove.

With respect to claim 2 **Horvitz** teaches "**the method of claim 1, wherein parsing the natural language text further comprises segmenting each sentence in the natural language text into words, building the dependency tree containing dependency pairs by comparing word pairs in the natural language text with a dependency database, and adding the word pairs found in the dependency database as dependency pairs to the dependency tree**" as Figure 2 and Figure 6.

Figure 2 teaches the parsing of a sentence and then the words from the text are being

compared to the list/database of figure 6. After comparison it is adding the words from

the list/database of figure 6 to the original model.

With respect to claim 6, **Horvitz** teaches **"the method of claim 1, wherein after**

extracting scheduling information from the natural language text, the method

further comprising computing a value for the scheduling information" as the

method determines if it should do nothing (i.e., corresponding to a low probability), do

something automatically (i.e., corresponding to a high probability), or suggest an action,

but do not do it automatically (i.e., corresponding to a medium probability). Thus,

embodiments of the invention effectively link scheduling with messaging automatically,

when a message has scheduling information contained therein (**Horvitz** Col 2, Lines 9-

21). In one embodiment, when the system is used in agent mode, the value of the

probability, within different ranges of threshold, is used to drive the language usage and

gesture of the agent (**Horvitz** Col 14, Lines 20-24).

Claim 17 is essentially the same as claim 6 except it sets forth the claimed

invention as an apparatus and is rejected for the same reasons as applied hereinabove.

With respect to claim 7, **Horvitz** teaches **"the method of claim 1, wherein after**

extracting scheduling information from the natural language text, the method

further comprising sending a confirmation message to a user to confirm the

scheduling information" as first, the method can select inaction--that is, not to perform

any scheduling action based on the message. Second, the method can select action,

but with user approval--that is, to perform a scheduling action based on the message,

but only after receiving confirmation from the user that the method should go ahead and

perform the scheduling action. Third, the method can select automatic action--that is, to

perform a scheduling action based on the message, automatically, without first receiving

confirmation from the user (**Horvitz** Col 6, Lines 58-67).

Claim 18 is essentially the same as claim 7 except it sets forth the claimed

invention as an apparatus and is rejected for the same reasons as applied hereinabove.

With respect to claim 8, **Horvitz** teaches "**the method of claim 1, wherein**

exporting the extracted scheduling information to the calendar application further

comprises sending a confirmation message to the calendar application" as the

embodiment of the invention causes a scheduling entry to be entered in the user's

calendar for Thursday, at noon, reading "Lunch with Bob" (**Horvitz** Col 5, Lines 50-52).

Claim 19 is essentially the same as claim 8 except it sets forth the claimed

invention as an apparatus and is rejected for the same reasons as applied hereinabove.

With respect to claim 9, **Horvitz** teaches "**the method of claim 1, wherein the**

natural language text is a natural language e-mail" as based on the scheduling

probability--defined in one embodiment as the probability a user desires to view a

calendar or to schedule an appointment given the information in an email message or

other source of text-based information (**Horvitz** Col 2, Lines 11-15).

Claim 20 is essentially the same as claim 9 except it sets forth the claimed

invention as an apparatus and is rejected for the same reasons as applied hereinabove.

With respect to claim 15, **Horvitz** teaches **"the personal organization**

apparatus of claim 13, wherein when building the dependency database the

processor further segments each sentence in the text corpus into words" as

Figure 2 and Figure 6. Figure 2 teaches the parsing of a sentence and then the words

from the text are being compared to the list/database of figure 6.

Claim 16 is essentially the same as claim 15 except it sets forth the claimed

invention as an apparatus and is rejected for the same reasons as applied hereinabove.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 3-5 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable

over **Horvitz et al.** (U.S. Patent No. 6,505,167) as applied to claims 1-2, 6-10, and 15-

20 above, in view of **Dehlinger et al. (Dehlinger** hereinafter) (U.S. PG Publication No.

2004/0006547).

With respect to claim 3, **Horvitz** teaches **"the method of claim 2, wherein**

when building the dependency tree:

"pairing each word in each sentence in the natural language text with the

possible head words in the head word list to form a word pair, wherein if the word

pair formed by the word and the possible head word is found in the dependency

database, adding the word pair formed by the word and the possible head word

as a dependency pair to the dependency tree" as Figure 2 and Figure 6. Figure 2

teaches the parsing of a sentence and then the words from the text are being compared

to the list/database of figure 6. After comparison it is adding the words from the

list/database of figure 6 to the original model.

Horvitz teaches the element of claim 3, but does not explicitly disclose the step

of **"forming a head word list of all possible head words in the sentence that are**

specified in a master position over the sentence."

However, **Dehlinger** discloses **"forming a head word list of all possible head**

words in the sentence that are specified in a master position over the sentence"

as to process a target input text into meaningful search terms, that is, descriptive words,

and optionally, word pairs (**Dehlinger** Paragraph 0100). Examiner interprets the

descriptive words as headwords.

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine the teaching of the cited references because

Dehlinger's teachings would have allowed **Horvitz** to learn and reasoning reasons

about the likelihood of user goals within the text by locating headwords from the text, to

identify descriptive word pairs, and to carry out the term matching operations, which are

relevant to scheduling information (**Dehlinger** Paragraph 0189).

Claim 12 is essentially the same as claim 3 except it sets forth the claimed

invention as an apparatus and is rejected for the same reasons as applied hereinabove.

With respect to claim 4, **Horvitz** teaches **the method of claim 2, further**

comprising building the dependency database using the following steps:

"segmenting each sentence in a text corpus into words, wherein the text

corpus contains a plurality of sample natural language texts containing

scheduling information" and **"if the word pair is a valid dependency pair,**

computing the probability of the word pair, adding the word pair as a dependency

pair to the dependency database" as Figure 2 and Figure 6. Figure 2 teaches the

parsing of a sentence and then the words from the text are being compared to the

list/database of figure 6. After comparison it is adding the words from the list/database

of figure 6 to the original model. The method can perform a scheduling action based on

the message, upon determining the scheduling probability of the message (**Horvitz** Col

2, Lines 9-11). **"checking all possible combinations of word pairs"** as to enhance

the power of classifiers by including multi-world phrases and high-level distinctions such

as "the name of a day appears in the message" or "a time is mentioned" and Boolean

combinations of words and high-level distinctions such as "a time is mentioned" and

followed by the word "at" (**Horvitz** Col 8, Lines 57-62).

Horvitz teaches the element of claim 4, but does not explicitly disclose the steps

of **"for each sentence in the text corpus, determine if the word pair has a high co-**

occurrency in the text corpus

if the word pair has a high co-occurrence in the text corpus, determining

the head word using a tagged corpus, and checking the validity of the word pair

using violation constraints, wherein the tagged corpus specifies the actual head

words for sentences relevant to scheduling information in the text corpus and

contains dependencies for all other words with respect to the actual head words,

and the violation constraints specify illegal dependency structures

adding the probability of the dependency pair to the dependency database,

wherein the probability of the dependency pair corresponds to the frequency of

the word pair in the text corpus

repeating the above steps until no new dependency pairs are identified."

However, **Dehlinger** discloses **"for each sentence in the text corpus,**

determine if the word pair has a high co-occurrence in the text corpus" as the

selectivity value(s) associated with a word are related to the frequency of occurrence of

that word in at least one library of texts in a field, relative to the frequency of occurrence of the same word in one or more libraries of texts (**Dehlinger** Paragraph 0009). **"if the word pair has a high co-occurrency in the text corpus, determining the head word using a tagged corpus"** as process a target input text into meaningful search terms, that is, descriptive words, and optionally, word pairs (**Dehlinger** Paragraph 0100). Examiner interprets the descriptive words as headwords.

"checking the validity of the word pair using violation constraints, wherein the tagged corpus specifies the actual head words for sentences relevant to scheduling information in the text corpus and contains dependencies for all other words with respect to the actual head words, and the violation constraints specify illegal dependency structures" as the word strings may be used to generate word groups, typically pairs of proximately arranged words. This may be done, for example, by constructing every permutation of two words contained in each string. One suitable approach that limits the total number of pairs generated is a moving window algorithm, applied separately to each word string, and indicated at 88 in the figure. The overall rules governing the algorithm, for a moving "three-word` window, are as follows:

consider the first word(s) in a string. If the string contains only one word, no pair is generated; if the string contains only two words, a single two-word pair is formed; If the string contains only three words, form the three permutations of word pairs, i.e., first and second word, first and third word, and second and third word (**Dehlinger** Paragraphs 0132, 0133, 0134, 0135).

"adding the probability of the dependency pair to the dependency database, wherein the probability of the dependency pair corresponds to the frequency of the word pair in the text corpus" as the selectivity value of a word in a library of texts in a field is related to the frequency of occurrence of that word in the library, relative to the frequency of occurrence of the same word in one or more other libraries of texts (**Dehlinger** Paragraph 0090). After all of the terms have been considered, the updated list includes each TID (and optionally, associated CID) whose text has at least one of the search terms, and the total match score for the text having that TID (**Dehlinger** Paragraph 0095). Examiner interprets the total score as addition of probabilities. **"repeating the above steps until no new dependency pairs are identified"** as the verb-root words included in the dictionary are readily assembled from the texts in a library of texts, or from common lists of verbs, building up the list of verb roots with additional texts until substantially all verb-root words have been identified (**Dehlinger** Paragraph 0108).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the cited references because **Dehlinger's** teachings would have allowed **Horvitz** to learn and reasoning reasons about the likelihood of user goals within the text by locating headwords from the text, which are relevant to scheduling information. A standard ranking algorithm of **Dehlinger's** would have allowed ranking of the text entries in the updated list of the top ranked matching text.

Claim 13 is essentially the same as claim 4 except it sets forth the claimed

invention as an apparatus and is rejected for the same reasons as applied hereinabove.

With respect to claim 5 **Horvitz** teaches **"the method of claim 2, wherein**

determining if the natural language text contains scheduling information further

comprises, the text corpus containing a plurality of sample natural language texts

containing scheduling information" as the method can perform a scheduling action

based on the message, upon determining the scheduling probability of the message.

Based on the scheduling probability--defined in one embodiment as the probability a

user desires to view a calendar or to schedule an appointment given the information in

an email message or other source of text-based information.--the method determines if

it should do nothing (i.e., corresponding to a low probability), do something

automatically (i.e., corresponding to a high probability), or suggest an action, but do not

do it automatically (i.e., corresponding to a medium probability). Thus, embodiments of

the invention effectively link scheduling with messaging automatically, when a message

has scheduling information contained therein (**Horvitz** Col 2, Lines 9-21).

Horvitz teaches the element of claim 5, but does not explicitly disclose the steps

of **"calculating a probability sum for the natural language text by adding up**

probabilities for all the dependency pairs in the dependency tree,

the probability of each dependency pair corresponding to the frequency of

the dependency pair in a text corpus."

However, **Dehlinger** discloses **"calculating a probability sum for the natural language text by adding up probabilities for all the dependency pairs in the dependency tree" and "the probability of each dependency pair corresponding to the frequency of the dependency pair in a text corpus"** as the selectivity value of a word in a library of texts in a field is related to the frequency of occurrence of that word in the library, relative to the frequency of occurrence of the same word in one or more other libraries of texts (**Dehlinger** Paragraph 0090). After all of the terms have been considered, the updated list includes each TID (and optionally, associated CID) whose text has at least one of the search terms, and the total match score for the text having that TID (**Dehlinger** Paragraph 0095). Examiner interprets the total score as addition of probabilities. This overlap is expressed as a match score. By considering all of the content-rich search terms as a whole, the program finds the highest possible match scores, e.g., global maximum word and word-pair overlap (**Dehlinger** Paragraph 0092).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the cited references because **Dehlinger's** teachings would have allowed **Horvitz** to learn and reasoning reasons about the likelihood of user goals within the text by locating headwords from the text, which are relevant to scheduling information. A standard ranking algorithm of **Dehlinger's** would have allowed ranking of the text entries in the updated list of the top ranked matching text by adding the probabilities of the text corpus.

Claim 11 is essentially the same as claims 4 and 5 except it sets forth the claimed invention as an apparatus and is rejected for the same reasons as applied hereinabove.

With respect to claim 14, Horvitz does not explicitly disclose **"The personal organization apparatus of claim 13, wherein the processor repetitively builds the dependency database until no new dependency pairs are identified."**

However, **Dehlinger** discloses **"The personal organization apparatus of claim 13, wherein the processor repetitively builds the dependency database until no new dependency pairs are identified"** as the verb-root words included in the dictionary are readily assembled from the texts in a library of texts, or from common lists of verbs, building up the list of verb roots with additional texts until substantially all verb-root words have been identified (**Dehlinger** Paragraph 0108).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of the cited references because **Dehlinger's** teachings would have allowed **Horvitz** to learn and reasoning reasons about the likelihood of user goals within the text by locating headwords from the text, which are relevant to scheduling information. A standard ranking algorithm of **Dehlinger's** would have allowed ranking of the text entries in the updated list of the top ranked matching text.

Conclusion

8.   The prior art made of record and not replied upon is considered pertinent to

applicant's disclosure is listed on 892 form.

Contact Information

9.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Usmaan Saeed whose telephone number is (571)272-

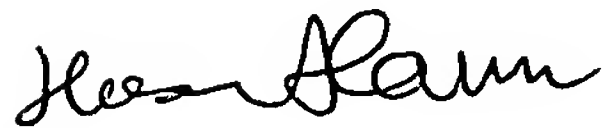4046. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Hosain Alam can be reached on (571)272-3978. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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Business Center (EBC) at 866-217-9197 (toll-free).

Usmaan Saeed
Patent Examiner
Art Unit: 2166

Hosain Alam
Supervisor

US
March 16, 2006